

## CLAIMS

What is claimed is:

1. A expandable stent, comprising: a plurality of interconnected flexible cells defining a stent having a proximal end and a distal end and a longitudinal axis, the cells arranged in a plurality of interconnected flexible rows disposed along the longitudinal axis of the stent with a distal row disposed at the distal end of the stent and a proximal row disposed at the proximal end of the stent, wherein the cells disposed in the distal row of the stent are adapted to exert greater radial force and are adapted to be more flexible than the cells disposed in the rows disposed between the distal row and the proximal end of the stent.
2. The stent of claim 1, wherein the cells in the distal row are of a different size than the cells disposed in the rows disposed between the distal row and the proximal end of the stent.
3. The stent of claim 1, wherein the cells in the distal row are of a thinner gauge than the gauge of the material utilized in the cells disposed between the distal row and the proximal end of the stent.
4. The stent of claim 1, wherein the cells in the distal row are made of a material that is more flexible than the material utilized in the cells disposed between the distal row and the proximal end of the stent.
5. An expandable stent, comprising: a plurality of interconnected flexible cells defining a stent having a proximal end and a distal end and a longitudinal axis, the cells arranged in a plurality of interconnected flexible rows disposed along the longitudinal axis of the stent with a distal row disposed at the distal end of the

stent and a proximal row disposed at the proximal end of the stent, wherein the cells in the distal row of the stent and the cells disposed in the proximal row of the stent are adapted to exert greater radial force and are adapted to be more flexible than the cells disposed in the rows disposed between the distal row and the proximal row.

6. The stent of claim 5, wherein the cells in the distal row and the proximal row are of a different size than the cells disposed in the rows disposed between the distal row and the proximal row of the stent.

7. The stent of claim 5, wherein the cells in the distal row and the proximal row are of a thinner gauge than the gauge of the material utilized in the cells disposed between the distal row and the proximal row of the stent.

8. The stent of claim 5, wherein the cells in the distal row and the proximal row are made of a material that is more flexible than the material utilized in the cells disposed between the distal row and the proximal row of the stent.

9. An expandable stent, comprising:

a) a plurality of interconnected flexible cells defining a stent having a proximal end and a distal end and a longitudinal axis, the cells arranged in a plurality of interconnected flexible rows disposed along the longitudinal axis of the stent with a distal row disposed at the distal end of the stent and a proximal row disposed at the proximal end of the stent, each of the flexible cells comprising a first member, a second member, a third member and, a fourth member;

b) a first C-shaped loop disposed between the first member and the third member;

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- (c) a second C-shaped loop disposed between the second member and the fourth member;
- d) a first flexible connector disposed between the first member and the second member; and
- e) a second flexible connector disposed between the third member and the fourth member, wherein the cells of the distal row are provided with first and third members that are shorter than the second and fourth members in the distal row, and wherein the distal row is provided with first and second flexible connectors that are more flexible than the flexible connectors in the cells in the other rows of the stent.

- 10. The stent of claim 9, wherein the first and the second flexible connectors are U-shaped.
- 11. The stent of claim 9, wherein the first and the second flexible connectors are S-shaped.
- 12. The stent of claim 9, wherein the first and the second flexible connectors are Z-shaped.
- 13. The stent of claim 9, wherein the first and the third members in the distal row are about 15% shorter than the second and the fourth members in the distal row.
- 14. The stent of claim 9, wherein the first and the second flexible connectors in the distal row are narrower than the first and the second flexible connectors in the cells in the other rows of the stent.
- 15. The stent of claim 14, wherein the first and the second flexible connectors in the distal row are about 40% narrower than the first and the second flexible connectors in the cells in the other rows of the stent.

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16. The stent of claim 9, wherein the first and the second flexible connectors in the distal row are annealed to impart a hardness that is different than the hardness of the flexible connectors in the other rows of the stent.

17. The stent of claim 9, wherein the stent is comprised of NiTi and the first and the second flexible connectors in the distal row of the stent are in a martensitic phase and the remaining portions of the stent are in the austenitic phase.

18. The stent of claim 9, wherein the cells in the distal row are of a thinner gauge than the gauge of the material utilized in the cells disposed between the distal row and the proximal end of the stent.

19. The stent of claim 9, wherein the cells in the distal row are made of a material that is more flexible than the material utilized in the cells disposed between the distal row and the proximal end of the stent.

20. An expandable stent, comprising:

a) a plurality of interconnected flexible cells defining a longitudinal stent having a proximal end and a distal end and a longitudinal axis, the cells arranged in a plurality of interconnected flexible rows disposed along the longitudinal axis of the stent with a distal row disposed at the distal end of the stent and a proximal row disposed at the proximal end of the stent, each of the flexible cells comprising a first member, a second member, a third member, and a fourth member;

b) a first C-shaped loop disposed between the first member and the third member;

c) a second C-shaped loop disposed between the second member and the fourth member;

d) a first flexible connector disposed between the first member and the second member; and

e) a second flexible connector disposed between the third member and the fourth member, wherein the cells of the distal row are provided with first and third members that are shorter than the second and fourth members in the distal row, and wherein the distal row, and in the row proximal to the distal row, are provided with first and second flexible connectors that are more flexible than the flexible connectors in the other rows of the stent.

21. The stent of claim 20, wherein the first and the second flexible connectors are U-shaped.

22. The stent of claim 20, wherein the first and the second flexible connectors are S-shaped.

23. The stent of claim 20, wherein the first and the second flexible connectors are Z-shaped.

24. The stent of claim 20, wherein the first and the third members in the distal row are about 15% shorter than the second and the fourth members in the distal row.

25. The stent of claim 20, wherein the first and the second flexible connectors in the distal row and in the row proximal to the distal row are narrower than the first and second flexible connectors in the cells in the other rows of the stent.

26. The stent of claim 25, wherein the first and the second flexible connectors in the distal row and in the row proximal to the distal row are about 40% narrower than the flexible connectors in the cells in the other rows of the stent.

27. The stent of claim 20, wherein the first and the second flexible connectors in the distal row and in the row proximal to the distal row are annealed to impart a hardness that is different from the hardness of the flexible connectors in the other rows of the stent.

28. The stent of claim 20, wherein the stent is comprised of NiTi and the first and the second flexible connectors in the distal row and the row proximal to the distal row are in a martensitic phase and the remaining portions of the stent are in the austenitic phase.

29. The stent of claim 20, wherein the cells in the distal row and in the row proximal to the distal row are of a thinner gauge than the gauge of the material utilized in the cells disposed in the other rows of the stent.

30. The stent of claim 20, wherein the cells in the distal row and the row proximal to the distal row are made of a material that is more flexible than the material utilized in the cells disposed in the other rows of the stent.

31. An expandable stent comprising:

a) a plurality of flexible cells defining a stent having a proximal end and a distal end and a longitudinal axis, the cells arranged in a plurality of flexible rows along the longitudinal axis with a distal row disposed at the distal end of the stent and a proximal row disposed at the proximal end of the stent, each of the flexible cells comprising a first member, a second member, a third member, and a fourth member;

b) a first C-shaped loop disposed between the first member and the third member;

c) a second C-shaped loop disposed between the second member and the fourth member;

d) a first flexible connector disposed between the first member and the second member; and

e) a second flexible connector disposed between the third member and the fourth member, wherein the cells of the distal row are provided with first and third members that are shorter than the second and fourth members in the distal row, and wherein the cells of the proximal row are provided with second and fourth members that are shorter than the first and third members in the proximal row, and wherein the distal row, and the row proximal to the distal row, and the proximal row and the row distal to the proximal row are provided with first and second flexible connectors that are more flexible than the flexible connectors in the other rows of the stent.

32. The stent of claim 31, wherein the first and the second flexible connectors are U-shaped.

33. The stent of claim 31, wherein the first and the second flexible connectors are S-shaped.

34. The stent of claim 31, wherein the first and the second flexible connectors are Z-shaped.

35. The stent of claim 31, wherein the first and the second flexible connectors in the distal row, the row proximal to the distal row, the proximal row, and the row distal to the proximal row are narrower than the first and the second flexible connectors in the cells disposed in the other rows of the stent.

36. The stent of claim 31, wherein the first and the second flexible connectors in the distal row, the row proximal to the distal row, the proximal row, and the row distal to the proximal row are narrower than the first

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and the second flexible connectors in the cells disposed in the other rows of the stent.

37. The stent of claim 36, wherein the first and the second flexible connectors in the distal row, the row proximal to the distal row, the proximal row, and the row distal to the proximal row are about 40% narrower than the first and the second flexible connectors in the cells disposed in the other rows of the stent.

38. The stent of claim 31, wherein the flexible connectors in the distal row, the row proximal to the distal row, the proximal row, and the row distal to the proximal row are annealed to impart a hardness that is different from the hardness of the first and the second flexible connectors in the cells disposed in the other rows of the stent.

39. The stent of claim 31, wherein the stent is comprised of NiTi and the first and the second flexible connectors in the distal row, the row proximal to the distal row, the proximal row, and the row distal to the proximal row are in a martensitic phase and the remaining portions of the stent are in the austenitic phase.

40. The stent of claim 31, wherein the cells in the distal row, the row proximal to the distal row, the proximal row, and the row distal to the proximal row are of a thinner gauge than the gauge of the material utilized in the cells disposed in the other rows of the stent.

41. The stent of claim 31, wherein the cells in the distal row, the row proximal to the distal row, the proximal row, and the row distal to the proximal row of the stent are made of a material that is more flexible



than the material utilized in the cells disposed in the other rows of the stent.

42. An expandable stent, comprising: a plurality of flexible cells defining a stent having a proximal end and a distal end, the stent provided with means for imparting a radial force at the distal end that is greater than the radial force in the portion of the stent proximal to the distal end.

43. The stent of claim 42 further provided with means for imparting flexibility to the distal end of the stent that is greater than the flexibility of that portion of the stent proximal to the distal end.

44. An expandable stent, comprising: a plurality of flexible cells defining a stent having a proximal end and a distal end, the stent provided with means for imparting a radial force at its proximal and distal ends that is greater than the radial force of that portion of the stent disposed between the proximal and distal ends.

45. The stent of claim 44 further provided with means for imparting flexibility to the distal end of the stent and the proximal end of the stent that is greater than the flexibility of that portion of the stent disposed between the proximal and distal ends.

46. An expandable stent for treating a lumen having a unique characteristic along a portion of the lumen, comprising: a plurality of interconnected flexible cells, the cells arranged in a plurality of interconnected flexible rows defining a stent having a proximal end and a distal end and a longitudinal axis, wherein at least one of the rows is adapted to accommodate the unique characteristic of that portion of the lumen in contact with the adapted row.

47. An expandable stent for treating a lumen having a non-uniform diameter, comprising: a plurality of interconnected flexible cells, the cells arranged in a plurality of interconnected flexible rows defining a stent having a proximal end and a distal end and a longitudinal axis, wherein at least one of the rows is adapted to accommodate the non-uniform diameter of the portion of the lumen in contact with the adapted row.

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48. An expandable stent for treating a lumen having a non-uniform radial force, comprising: a plurality of interconnected flexible cells, the cells arranged in a plurality of interconnected flexible rows defining a stent having a proximal end and a distal end and a longitudinal axis, wherein at least one of the rows is adapted to accommodate the non-uniform radial force of the portion of the lumen in contact with the adapted row.

49. An expandable stent for treating a lumen having a non-uniform longitudinal flexibility, comprising: a plurality of interconnected flexible cells, the cells arranged in a plurality of interconnected flexible rows defining a stent having a proximal end and a distal end and a longitudinal axis, wherein at least one of the rows is adapted to accommodate the non-uniform longitudinal flexibility of the portion of the lumen in contact with the adapted row.

50. The stent of claim 46, wherein one of the plurality of rows disposed between the proximal end and the distal end is provided with a cell size that is larger than the cells in the remaining rows.

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